PATENT SPECIFICATION

1,038,160

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COMPLETE SPECIFICATION

DRAWINGS ATTACHED

Elastic Bearing Bush

We, CONTINENTAL GUMMI - WERKE AKTIENGESELLSCHAFT of Postfach 707, Continental-Haus, Hannover 3000, a German body corporate, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

The invention concerns an elastic bearing bush having grooves on its sliding surfaces for receiving lubricants and used predominantly in the car industry.

The requirements of such bearing bushes are that they guide the parts to be mounted so as to run smoothly and without play, and when the component mounted therein carries out movements, do not become crushed and are not unduly worn by abrasion.

The requirements are realized in accordance with the invention by the provision of a bearing bush of resilent material having in its sliding surface a plurality of axially longitudinal grooves for receiving lubricant, the grooves extending at least almost to the ends of the said surface and forming, with a component slidably but sealingly engaged in the said bearing bush, at least one closed cavity. In these hollow spaces lubricant is filled when assembling the bearing, thereby eliminating maintenance for the normal life of the bearing. The storage of lubricant ensures an easy running movement of the mounted component and the elastic, preferably elastomeric, material reduces the transmission of vibrations and noises.

If the hollow spaces for the charge of lubricant are formed by a large number of individual grooves, it is sufficient for the grooves extending in an axial direction to taper out before the end faces. If on the other hand the hollow space is to be single to enable the lubricant after a certain use to be uniformly distributed at the circumference of the mounted component, the individual grooves may communicate with one another by means of transverse passages, which may also be in the form of grooves. For producing such bearing bushes and for the possibility of storing a large quantity of lubricant it is expedient to permit the grooves to penetrate at the end faces and to provide the bearing bush with an annular sealing ledge which, supported against the mounted body, prevents the lubricant from emerging. By this arrangement an annular hollow space is formed at both ends of the bush and at the ends of the substantially axially extending groove, which space forms the communication between the individual hollow spaces of the grooves.

To prevent unused lubricant from escaping between the sealing ledges and the mounted component, the sealing ledges are fitted with pre-stressing on the mounted component, so that the sealing effect is ensured even if the bearing bush is compressed at one end by transverse forces and lifted away from the opposite end of the bush wall.

In combined radial and axial bearings correspondingly directed sealing ledges are provided, namely on the one hand a radially directed pre-stressed ledge and on the other hand an axially directed pre-stressed sealing ledge. If a radial bearing is combined at both ends with an axial bearing, then for producing an enclosed hollow space for the lubricant charge it suffices to arrange two axially directed sealing ledges at the bearing bush.

To impart to the bearing bush also the property of guiding the mounted component

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without play it is produced slightly oversize so that on installation the mounted component is retained with pre-tension. In order for the bearing to run easily under these conditions the overall surface enclosed by the grooves is preferably formed larger than the ribs remaining between the grooves. The latter are allowed to yield when the mounted component is inserted in order finally to guide the mounted component with pre-tension. Briefly expressed, the ribs on assembly of the bearing should be "pressed flat". The same effect may however also be obtained by the fact that in the case of very wide ribs disposed between the grooves, these ribs are made of a particularly resilient material.

The invention will be further described by way of example with reference to the accompanying drawings in which:—

Fig. 1 shows a bearing bush having an axial and radial part,

Fig. 2 shows a bearing bush with individual grooves, and

Fig. 3 shows the bearing bush of Fig. 1, installed in a bearing.

A bush 1 has grooves 2 formed in its sliding surface, the grooves being formed both in the axial and the radial part. The radial bearing part is enclosed at the end by the sealing ledge 3, which faces wedge-like in the direction of the mounted component 3'. The diameter at the inner edge of the sealing ledge 3 is smaller than that of the bush, so that when the mounted component 3' is introduced in the sealing ledge the pre-tension produced substantially prevents lubricant escaping. To promote the resilience of the sealing ledge 3, annular recesses 4 are formed on the end faces, providing that, when the sealing ledge 3 is radially displaced, the body of the bush 1 is not deformed from the sealing ledge 3. In a similar manner a sealing ledge 5 is provided in the axial direction on the other end of the bush in order with pre-tension to be pressed against a disc-shaped component 5'.

In the construction of a bearing bush according to Fig. 2, the sealing ledges 3 are arranged directly on the bush body and the grooves 2 each individually form an enclosed hollow space to receive the lubricant. For dampening vibrations and noise producing oscillations this bush is provided on its outer surface with grooves 6, by means of which a secure mounting is obtained, the oversize bearing bush being introduced in the holder and the ribs formed between the grooves being readily pressed together.

WHAT WE CLAIM IS:—

1. A bearing bush of resilient material having in its sliding surface a plurality of axially longitudinal grooves for receiving lubricant, the grooves extending at least almost to the ends of the said surface and forming, with a component slidably but sealingly engaged in the said bearing bush, at least one closed cavity.

2. A bearing bush according to claim 1, in which the grooves form mutual hollow spaces at the end faces of the bush and lead into an annular hollow space which is closed outwardly by means of annular sealing ledges.

3. A bearing bush according to claim 2, in which the sealing ledge is pre-tensioned against a sliding component.

4. A bearing bush according to claims 2 or 3, in which the sealing ledges, depending upon the kind of bush, are directed in a radial and/or in an axial direction.

5. A bearing bush according to any of claims 1 to 4 in which the overall surface area of the grooves is greater than that of the ribs remaining there between.

6. A bearing bush according to any of claims 1 to 5, in which the ribs disposed between the grooves consist of a softer material than the remainder of the bush.

7. An elastic bearing bush substantially as described with reference to and as illustrated in the accompanying drawings.

POTTS & Co.

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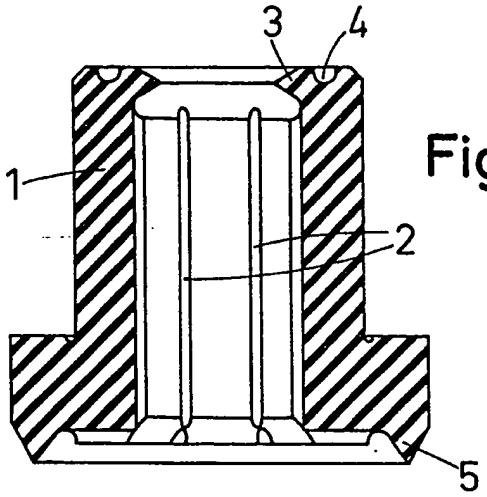

Fig.1

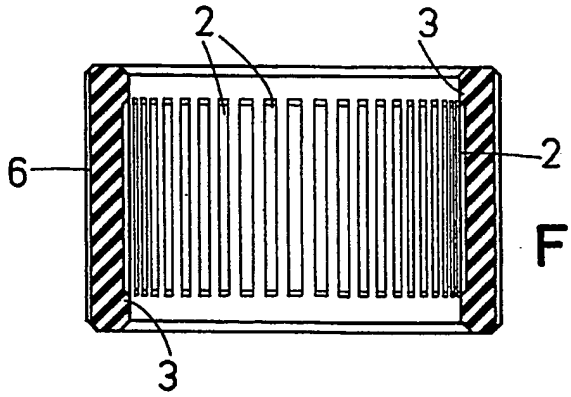

Fig.2

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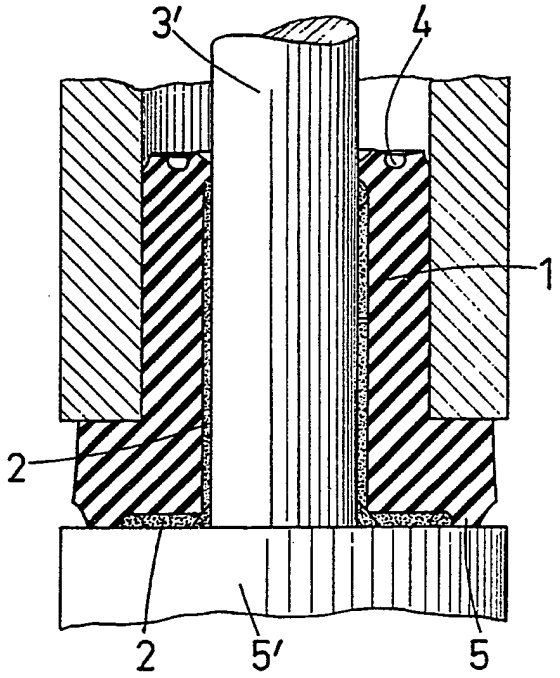
2 SHEETS This drawing is a reproduction of the Original on a reduced scale.
SHEETS 1 & 2

Fig.3



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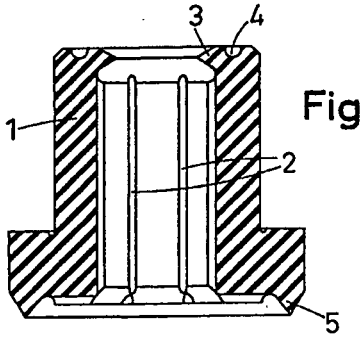

Fig.1

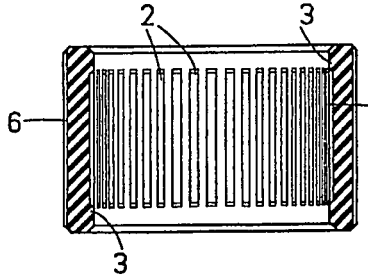

Fig.2

Fig.3